TESTIMONY OF
BENJAMIN H. GRUMBLES
ASSISTANT ADMINISTRATOR FOR WATER
U.S. ENVIRONMENTAL PROTECTION AGENCY

BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
UNITED STATES HOUSE OF REPRESENTATIVES

I. Introduction

Madam Chairwoman and members of the Subcommittee, I am Benjamin H. Grumbles, Assistant Administrator for Water at the United States Environmental Protection Agency (EPA). Thank you for the opportunity to discuss EPA's programs to protect water quality from the adverse effects of atmospheric deposition. Atmospheric deposition is a significant source of water quality impairments, and I welcome the opportunity to discuss this important issue with the Subcommittee.

II. Significance of Atmospheric Deposition as a Source of Water Pollution

EPA's 2002 National Assessment Database summarizes State water quality reports ("Section 305(b) reports") and categorizes the quality of the state's assessed waters as good, threatened, or impaired. States identified 45% of the assessed miles of rivers and streams as impaired; agriculture, hydromodification, and habitat alterations are the leading identified sources, in that order. States identified 47% of assessed lakes, ponds, and reservoirs as impaired and identified agriculture, atmospheric deposition, land application/waste sites, and hydromodification as the leading sources. Finally, States identified 32% of assessed bays and estuaries as impaired, with the leading sources identified as industrial discharges, municipal discharges, resource extraction, urban runoff/stormwater, and atmospheric deposition. About 19% of river and stream miles,

37% of lake acres, and 35% of bay and estuary square miles have been assessed. Impairment in non-assessed waters may be lower, since States often focus assessments on waters with known or suspected problems.

Atmospheric deposition of pollutants is a significant component of waterbody impairments. State Section 305(b) reports cite atmospheric deposition as a source of impairment in 26% of lakes, reservoirs, bays, and estuaries, and 5% of rivers and streams. Over 8,500 waterbodies in 43 states and Puerto Rico have been listed as impaired by mercury on state section 303(d) lists, and most of these are believed to be caused by atmospheric deposition of mercury. Reducing mercury releases to the air is important both domestically and internationally because the mercury can be subsequently deposited to water, converted to methyl mercury, and taken up by fish. In 2004, 44 States had fish consumption advisories for mercury, totaling 13.2 million lakes acres and 765,000 river miles. This represents a decrease of about 1400 river miles under advisory since 2003.

Acid rain, which results from the air-emission and subsequent deposition of sulfur dioxide and (to a lesser extent) oxides of nitrogen, is also a major source of water pollution. Acid rain causes a cascade of effects that harm or kill individual fish, reduce fish population numbers, and decrease biodiversity, as discussed more fully at www.epa.gov/acidrain/effects/surface_water.html.

Air deposition of nitrogen is also a significant contributor to the impairment of many waterbodies through the mechanism of eutrophication. Eutrophication is an accumulation of nutrients which causes an overgrowth of algae and other organisms. This increased growth of algae can cause a depletion of oxygen in shallow waters. For example, air deposition of nitrogen is a significant component of nitrogen-caused

problems in many estuaries that are included in the National Estuary Program established by Congress under Section 320 of the Clean Water Act ("CWA"), including Albemarle-Pamlico Sound, NC (estimated to be 38-44% of total nitrogen contributions); Massachusetts Bays (5-27%) ; Tampa Bay (28%); Delaware Inland Bays (21%); Long Island Sound (20%); and others. In the Chesapeake Bay, air deposition of nitrogen accounts for an estimated 28% of nitrogen inputs to the Bay. Other sectors, including agriculture and municipal treatment plants also account for significant deposits. Furthermore, atmospheric deposition contributes significant amounts of nitrogen (estimated to be approximately 20%) to the Gulf of Mexico; Nitrogen, from a variety of sources including agricultural runoff and atmospheric deposition, is generally believed to be the most significant pollutant that is causing hypoxia (oxygen deficiency) to occur in the Gulf.

Air deposition of a range of other atmospheric pollutants can also contribute to impairments of our Nation's waters. For example, estuary programs in Long Island Sound, Mobile Bay, Corpus Christi Bay, Casco Bay, Santa Monica Bay, San Francisco Bay, and Tampa Bay have found that toxic metals, polycyclic aromatic hydrocarbons, and various other organic contaminants from atmospheric sources have contributed to water quality impairments. Through the National Estuary Program, EPA has funded air deposition studies and monitoring programs to better understand the nature, scope, and effects of these contaminants. In addition, EPA has funded individual studies of atmospheric deposition in Casco Bay and Tampa Bay.

III. Atmospheric Deposition of Mercury

A. Clean Air Act Programs

The U.S. has made significant progress in the reduction of industrial emissions of mercury to the air. In the last 15 years, EPA has focused most of its mercury reduction efforts on large point sources of air emissions, such as municipal waste combustors, medical waste incinerators, hazardous waste combustors, and more recently, industrial boilers, chlor-alkali facilities, and electric utilities.

In March 2005, Administrator Steven L. Johnson signed the Clean Air Mercury Rule. This rule will significantly reduce mercury emissions from coal-fired power plants across the United States. Taken together, the 2005 Clean Air Interstate Rule and the Clean Air Mercury Rule will reduce air deposition of electric utility mercury emissions by nearly 70 percent from 1999 levels when fully implemented

With the March 2005 completion of final regulations for coal-fired power plants, the Agency now has Clean Air Act (CAA) standards in place limiting mercury air releases from most major known industrial sources in the U.S. In addition to implementing these standards, the Agency, under the CAA Area Source program, is in the process of assessing certain smaller point sources that emit mercury. Under the CAA Residual Risk program, the Agency is evaluating the remaining risks, if any, from sources for which EPA has previously issued emissions standards under CAA §112(d). Mercury is one of several hazardous air pollutants that EPA will be investigating under these programs.

B. Clean Water Act Programs

In addition to these CAA programs, EPA is reducing the water quality impacts of air deposition of mercury under the CWA. On March 8, 2007, the Office of Water issued a memorandum which provides States with a new, voluntary approach for identifying and "listing" waters as impaired by mercury mainly from atmospheric sources. This approach uses Clean Water Act tools – the 303(d) listing process - to recognize and encourage state efforts to control mercury sources that may be impacting water quality.

EPA is recommending the voluntary approach for states that have in place a comprehensive mercury reduction program. These states may place waters which have been impaired by mercury that has come primarily from atmospheric sources in a specific subcategory ("5m") of their impaired waters lists. States using this approach may also defer development of Total Maximum Daily Loads (TMDLs) for mercury-impaired waters as a result of having implemented programs to control their mercury sources.

The memorandum recommends the inclusion of the following elements in a mercury reduction program: demonstrating that the state has made some initial progress in reducing mercury sources over which they have control; identifying waterbodies in the state which are impaired by mercury derived predominantly from atmospheric deposition; identifying in-state sources of mercury; implementing appropriate programs to control the state's mercury sources (including **CAIR**/**CAMR** clean air act programs); describing reduction goals and targets; establishing implementation schedules; monitoring progress in reducing mercury sources; and publicly reporting the state's progress along with the 303(d) list.

This approach acknowledges the challenge of controlling mercury impairments due to air deposition through TMDLs alone. It also calls public attention to states that

have strong mercury reduction programs in place. Rather than delaying action, the 5m listing approach allows states to focus resources on early implementation of mercury reduction programs and to achieve environmental results sooner.

Although states may defer mercury TMDLs under the 5m approach, if water quality standards are not achieved, States may need to develop TMDLs at a later date. States also have the option to continue developing TMDLs for mercury-impaired waters sooner, rather than deferring them. TMDLs may provide a valuable framework for identifying the sources that have contributed mercury to a waterbody, and for determining the reductions in mercury loadings that are needed to meet water quality standards. TMDLs by themselves do not provide the ability to control air sources; however, TMDLs provide a basis for further actions to control sources of mercury, including air sources.

Mercury TMDLs have been developed for 304 waterbodies in 20 states and the District of Columbia. In many waterbodies, especially in the eastern US, air deposition is the predominant source of mercury. Through the development of TMDLs, States have been able to better quantify the relative contributions of mercury from air deposition and other sources.

EPA is committed to working with states to identify innovative, effective, and efficient approaches to developing TMDLs for waters impaired by mercury, especially where air deposition is the major mercury source. Along these lines, EPA recently approved a mercury TMDL document developed by Minnesota. Minnesota's TMDL document is the first such "statewide" approach to mercury TMDLs. Rather than developing TMDLs on an individual waterbody-by-waterbody basis, the State grouped

waters into two "regions", based on differences in factors that affect fish mercury levels, and developed a TMDL for each of these two regions. The TMDL report covers 511 mercury impairments, or about half of the total mercury impairments in the state.

Many states are interested in how best to control mercury-impaired waters on a watershed basis. I view Minnesota's approach as nationally significant. Minnesota's approach could serve as a model for other states, especially where a state has a large number of mercury impairments due to air deposition, and the contributions from air deposition are relatively uniform. We will continue to work with states to identify tools and approaches to develop TMDLs for mercury as well as other pollutants from air sources.

IV. Air Deposition of Other Pollutants

A. EPA's Acid Rain "Cap and Trade" Program for SO_2

The Acid Rain Program was established under Title IV of the 1990 Clean Air Act Amendments to decrease acid rain and improve public health by dramatically reducing emissions of sulfur dioxide and oxides of nitrogen. For SO_2, Congress established a national cap and trading component. The program has exceeded expectations, obtaining significant reductions earlier than required and at cost much lower than projected. Some of the broad benefits of this approach include: environmental certainty through a firm cap and rigorous monitoring that a specific emissions level is achieved and maintained; providing regulatory certainty for affected sources; allowing for compliance flexibility as sources may choose from many alternatives for reducing emissions without government interference; and public availability of all data.

Specific environmental results have been excellent. Compliance has exceeded 99 percent every year, achieving reductions of roughly 8 million tons per year of SO2; the greatest SO_2 reductions were achieved in the highest SO_2 - emitting states; acid deposition dramatically decreased over large areas of the eastern Unites States, where reductions were most critically needed; trading did not cause geographic shifting of emissions or increases in localized pollution; and the human health and environmental benefits were delivered early and broadly. Moreover, compliance flexibility and allowance trading (and banking) have reduced compliance costs by more than two-thirds from initial EPA and industry estimates.

B. Clean Air Interstate Rule

On March 10, 2005, EPA issued the Clean Air Interstate Rule (CAIR), a rule that will achieve the largest reduction in air pollution in more than a decade. CAIR covers 28 eastern states and the District of Columbia. In addition to and apart from its air pollution benefits, CAIR will result in improvements in the acid buffering capacity for lakes in the Northeast and Adirondack Mountains. Specifically, 12 percent of Adirondack lakes are projected to be chronically acidic without CAIR. However, we project that the CAIR rule will eliminate chronic acidification in lakes in the Adirondack Mountains by 2030. In addition, CAIR is expected to decrease the percentage of chronically acidic lakes throughout the Northeast. However, some lakes in the Adirondacks and New England will continue to experience episodic acidification even after implementation of this rule.

The acidification discussed above is caused by sulfur dioxide emissions. In addition, this rule is anticipated to reduce nitrogen deposition in the CAIR region through the introduction of an annual NOx control program. Nitrogen deposition has the effect of

overloading aquatic ecosystems with nutrients. Reductions in the levels of nitrogen deposition will have a positive impact on eutrophication in estuaries and coastal areas in the region.

The Chesapeake Bay provides a good example of how CAIR will reduce the water quality impacts of nitrogen deposition. EPA's Chesapeake Bay Program projects that CAIR will likely reduce the nitrogen loads to the Bay by 8 million pounds per year, a reduction of 8.8%, by 2010.

Conclusion

We have made a major investment in the implementation of programs and practices to protect and restore waters that are impacted or may be impacted by atmospheric deposition. However, much more work remains to be done to achieve the program's long-term goals. We will continue to work with this Committee, our Federal colleagues, and the many partners, stakeholders, and citizens who want to accelerate the pace and efficiency of water quality protection and restoration. This concludes my prepared remarks; I would be happy to respond to any questions you may have.